AbstractID: 7988 Title: Developments in Multidimensional and Multimodality Imaging

Medical imaging technologies that combine the capabilities of two or more imaging modalities are becoming increasingly important in the diagnosis, staging, treatment, and monitoring of disease. In particular, the combination of morphological imaging modalities (e.g., x-ray, CT, ultrasound, and MR) with functional or molecular imaging modalities (e.g., optical, PET, SPECT, and functional MR) offers synergistic advances. This session provides an overview of technical and physical aspects of such developments, reviews the most prevalent technologies under consideration, addresses the challenges and limitations of such technologies, and discusses the opportunities for future research in multi-modality imaging. Example multi-modality approaches include x-ray / ultrasound, CT / PET, MR / PET, and Optical / CT. Applications ranging from pre-clinical imaging to tumor staging and treatment response monitoring are addressed.